

Claims

- 5 1. A green-emitting LED which is designed as a luminescence
conversion LED, comprising a primary radiation source,
which is a chip emitting in the UV or blue radiation
region, and a layer of a phosphor which is arranged in
front of the primary radiation source and completely or
10 partially converts the radiation of the chip into green
light of dominant wavelength $\lambda_{\text{dom}} = 550$ to 570 nm,
characterized in that the phosphor belongs to the class of
the oxynitridosilicates, having a cation M and the
empirical formula $M_{(1-c)}\text{Si}_2\text{O}_2\text{N}_2\text{:D}_c$, where D denotes a doping
15 with divalent europium and where M comprises Sr as a
constituent and $M = \text{Sr}$ alone or $M = \text{Sr}_{(1-x-y)}\text{Ba}_y\text{Ca}_x$ with
 $0 \leq x+y < 0.5$ is used, the oxynitridosilicate completely
or predominantly comprising the high-temperature-stable
modification HT.
- 20 2. The LED as claimed in claim 1, characterized in that the
Eu fraction makes up between 0.1 and 20 mol% of M.
3. The LED as claimed in claim 1, characterized in that Sr
25 represents the majority of M and a proportion of M, in
particular up to 30 mol%, is replaced by Ba and/or Ca.
4. The LED as claimed in claim 1, characterized in that a
proportion of M, in particular up to 30 mol%, is replaced
30 by Li and/or La and/or Zn.
5. The LED as claimed in claim 1, characterized in that part
of the SiN group in the oxynitridosilicate of formula
 $\text{MSi}_2\text{O}_2\text{N}_2$, in particular up to 30 mol%, is replaced by the
35 AlO group.

6. The LED as claimed in claim 1, characterized in that a proportion of Eu, in particular up to 30 mol%, is replaced by Mn.
- 5 7. The LED as claimed in claim 1, characterized in that the primary emission has a peak wavelength in the range from 380 to 430 nm, in particular at least 380 nm.
- 10 8. The LED as claimed in claim 1, characterized in that the green emission has a dominant wavelength in the range from 556 to 564 nm.
9. The LED as claimed in claim 1, characterized in that the primary radiation is completely converted.
- 15 10. The LED as claimed in claim 1, characterized in that the chip is an InGaN chip with a peak emission wavelength in the range from 430 to 465 nm.
- 20 11. The LED as claimed in claim 1, characterized in that the LED is dimmable.